Space Weather Forecast

Issued on Thursday 13 February 2025 at 00:33 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance G1 Minor Storms, mainly day 1-2 (13-14 Feb) due to the transition into faster solar winds.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low with occasional Common-class flares, the largest of which was from a spotless region in the northeast. The are seven sunspot regions on the disc, however these are all magnetically simple and relatively small. The main growth was in a sunspot region just west of the south-centre disc, developing a mature leader and trailer spot, however this has remained inactive.

No Earth directed Coronal Mass Ejections (CMEs) were observed from available imagery.

Solar Wind / Geomagnetic Activity: Connection to fast solar winds gradually eased. Solar wind speeds have been elevated at between 500-570km/s, before easing to be slightly elevated at 450-500km/s. Interplanetary Magnetic Field strength was weak with its north-south component also weak and variable in direction, but slightly favouring negative (southwards-directed) conditions. Geomagnetic activity was Quiet to Unsettled (Kp2-3) with one interval of Active (Kp4) at 12/0300-0600 UTC.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background throughout with no Solar Radiation Storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Moderate to Low activity expected with a chance of further Moderate class flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Current fast winds, are expected to become further enhanced later day 1 and into day 2 (13-14 Feb), reaching Elevated to Strong speeds. These winds are likely to continue day 3-4 (15-16 Feb). Mainly Unsettled to Active geomagnetic activity with slight chance of G1 Minor Storm intervals, but likely becoming Active with a chance of G1 Minor Storms ahead of the onset of the Elevated to Strong winds later day 1 or day 2 (13-14 Feb).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background throughout with no Solar Radiation Storms occurring.

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Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	50	40	10	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	40	40	50	50
Very Active	R3-R5 (X Class)	No	1	1	1	1

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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